FIG. 1

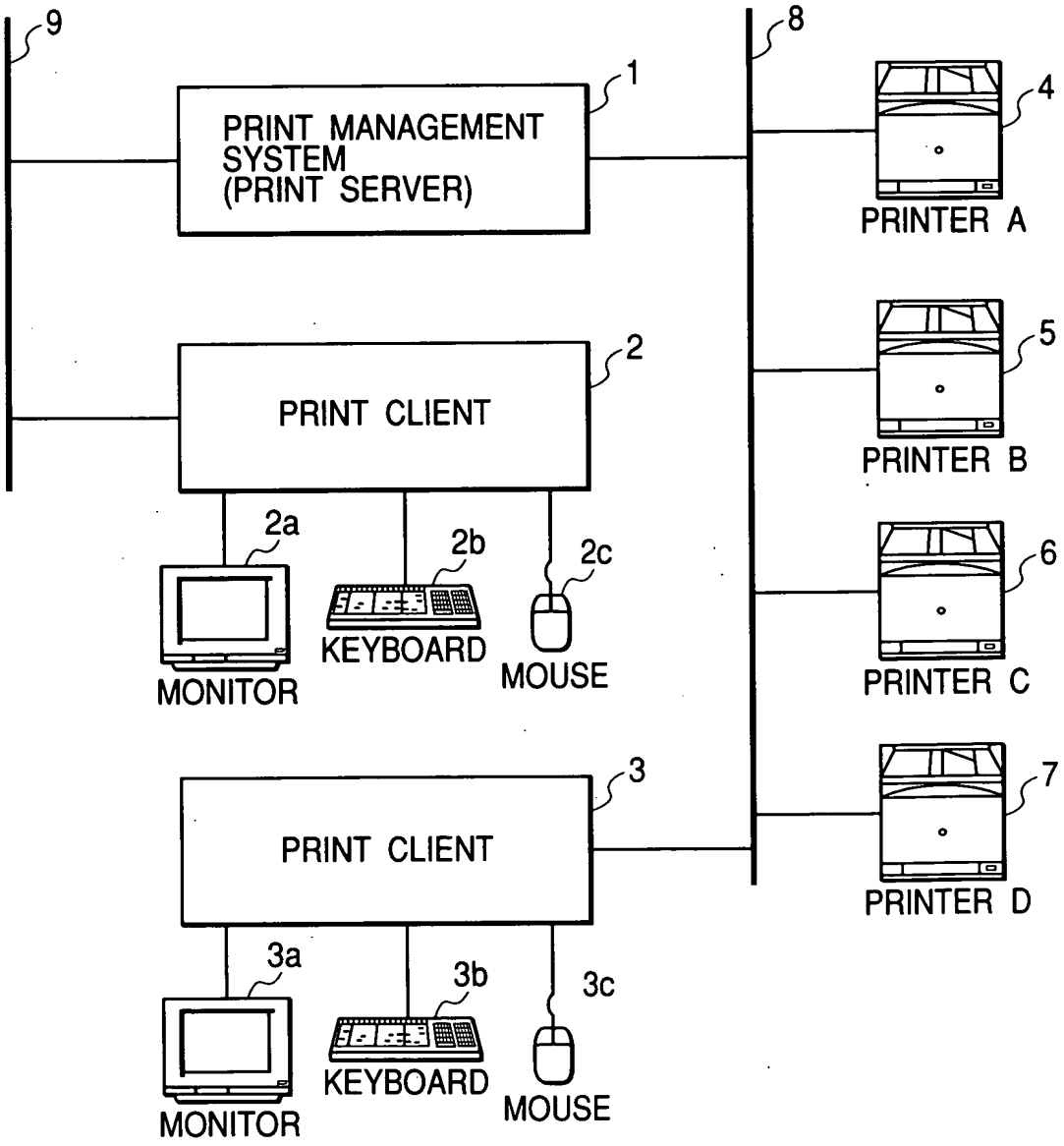

9
8
1
PRINT MANAGEMENT SYSTEM (PRINT SERVER)
4
PRINTER A
2
PRINT CLIENT
5
PRINTER B
2a
2b
2c
MONITOR
KEYBOARD
MOUSE
6
PRINTER C
3
PRINT CLIENT
7
PRINTER D
3a
3b
3c
MONITOR
KEYBOARD
MOUSE

FIG. 2

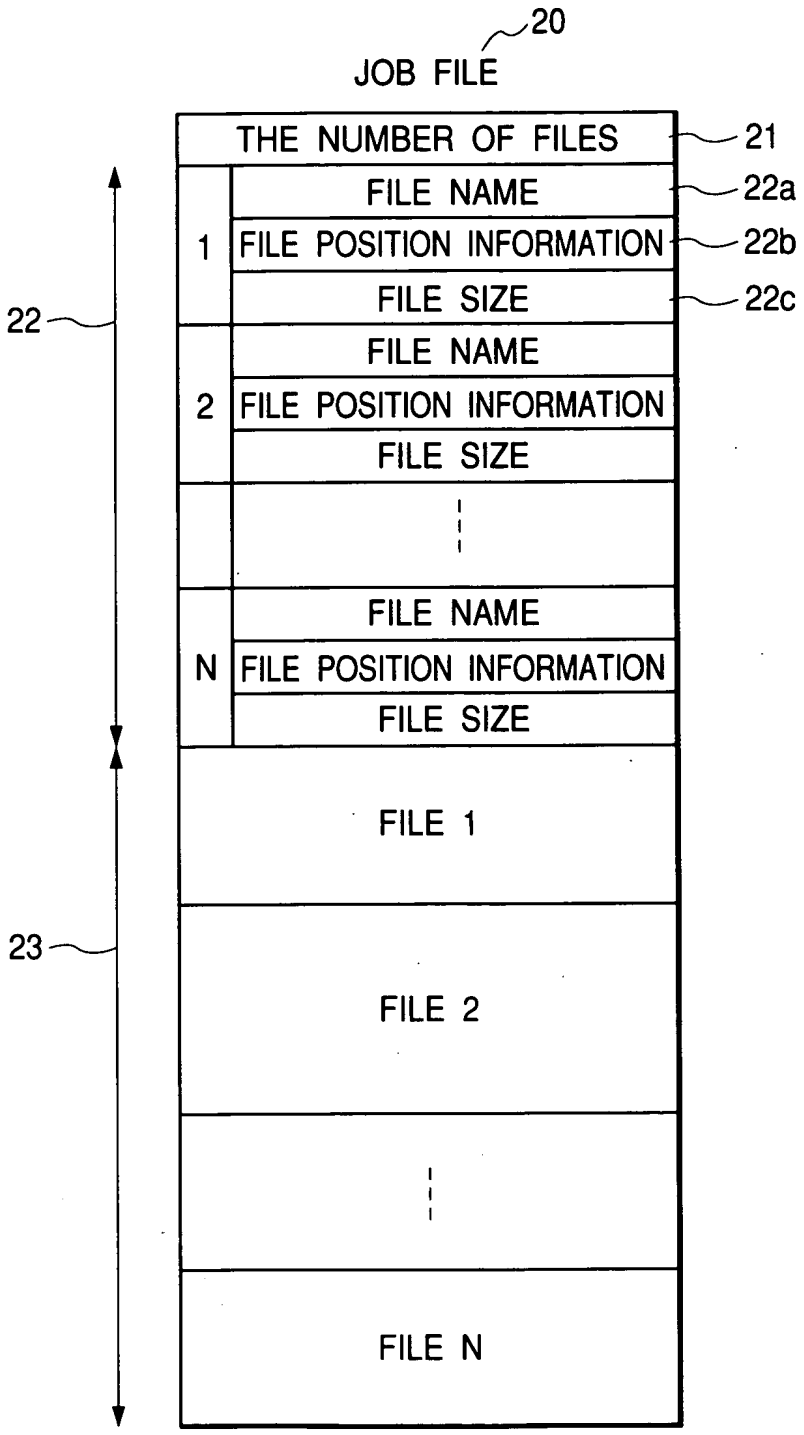

20
JOB FILE
THE NUMBER OF FILES
21
1
FILE NAME
22a
FILE POSITION INFORMATION
22b
FILE SIZE
22c
22
2
FILE NAME
FILE POSITION INFORMATION
FILE SIZE
N
FILE NAME
FILE POSITION INFORMATION
FILE SIZE
FILE 1
FILE 2
FILE N
23

FIG. 3

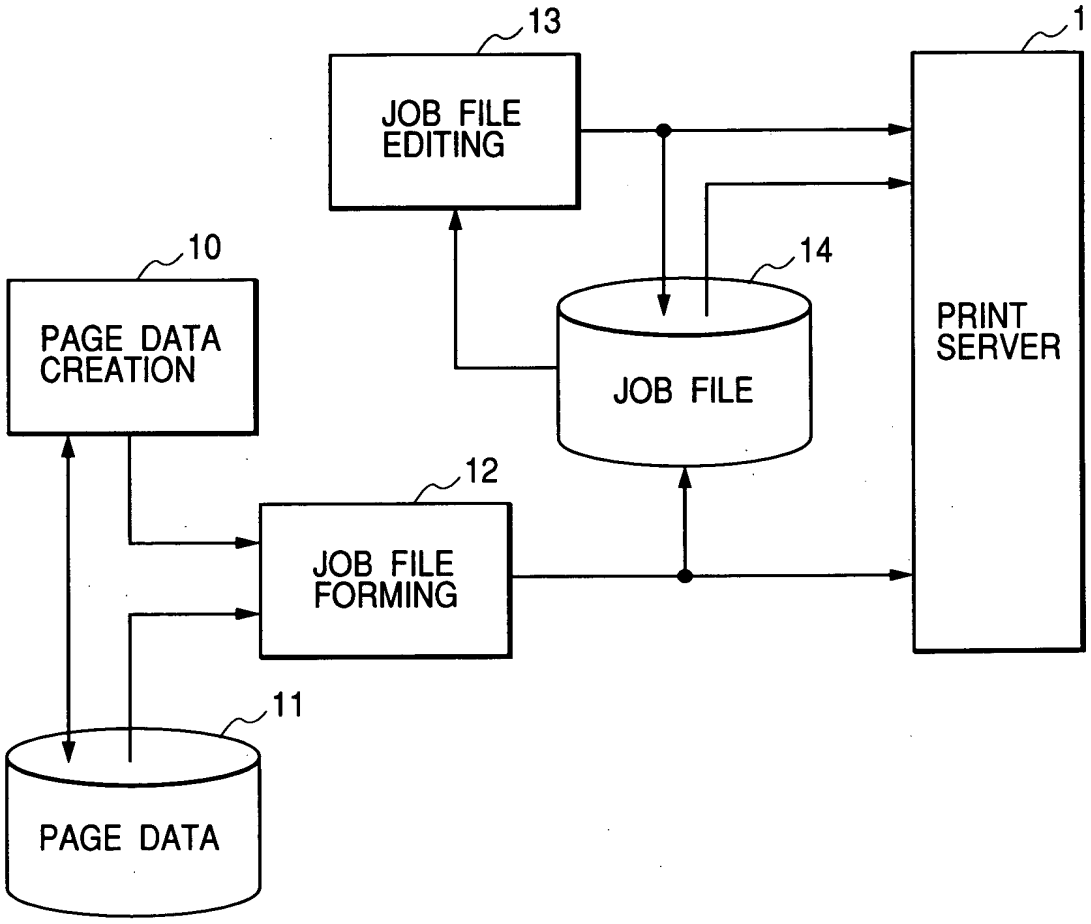

13
JOB FILE EDITING
1
PRINT SERVER
10
PAGE DATA CREATION
14
JOB FILE
12
JOB FILE FORMING
11
PAGE DATA

FIG. 4

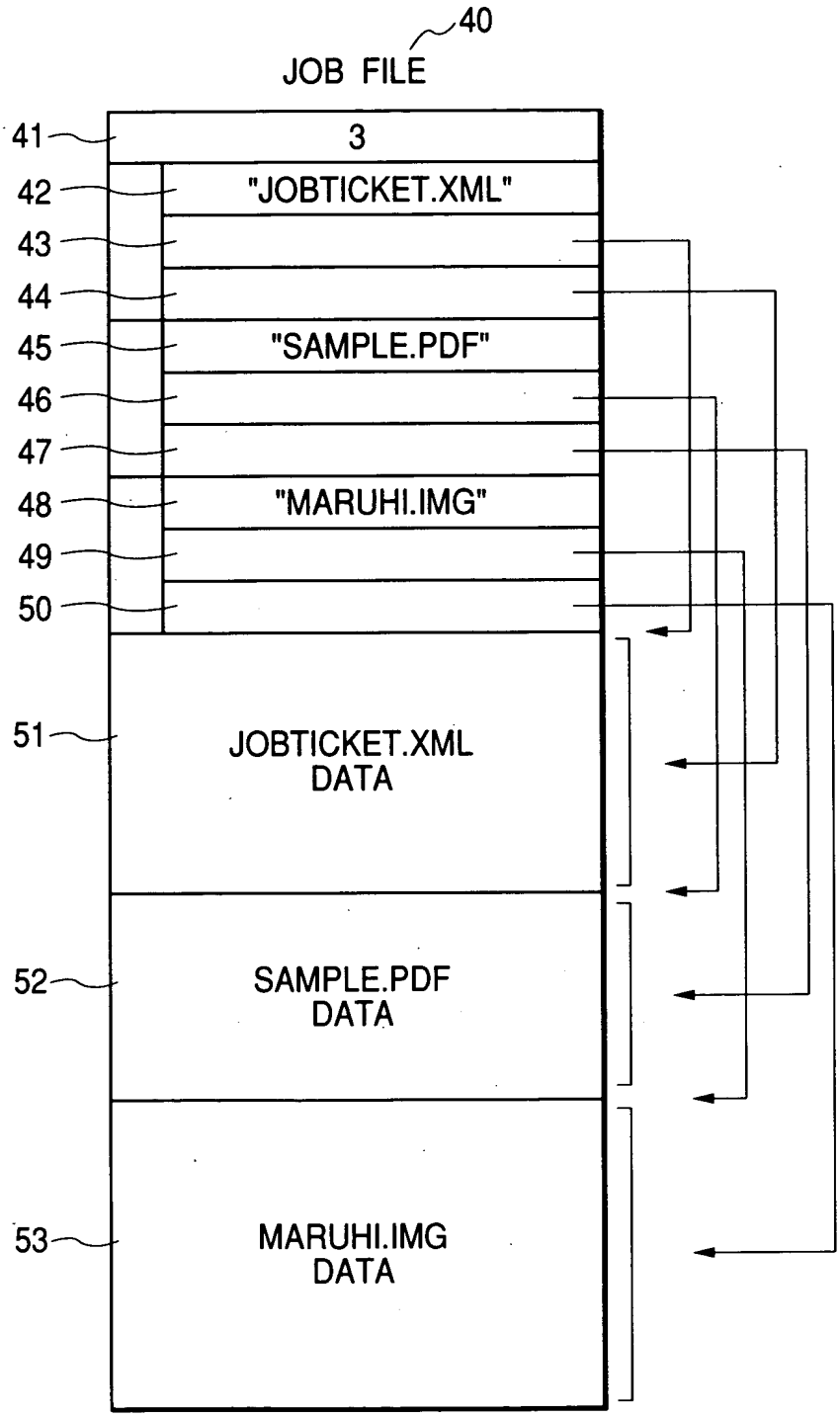

40
JOB FILE
41
3
42
"JOBTICKET.XML"
43
44
45
"SAMPLE.PDF"
46
47
48
"MARUHI.IMG"
49
50
51
JOBTICKET.XML
DATA
52
SAMPLE.PDF
DATA
53
MARUHI.IMG
DATA

FIG. 5

```
1  <JobTicket>
2   <Document FileName="sample.pdf" Amount="10"/>
3   <Media PaperSize="A4"/>
4   <Layout ColorFlag="true">
5    <Sheet ColorFlag="false">
6     <Surface Side="Front" ColorFlag="false">
7      <Content Page="0" Position="0 0" Scale="0.7" ColorFlag="false"/>
8      <Content Page="1" Position="400 0" Scale="0.7" ColorFlag="false"/>
9     </Surface>
10   </Sheet >
11   <Sheet ColorFlag="true">
12    <Surface Side="Front" ColorFlag="true">
13     <Content Page="2" Position="0 0" Scale="0.7" ColorFlag="false">
14      <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
15     </Content>
16     <Content Page="3" Position="400 0" Scale="0.7" ColorFlag="false"/>
17    </Surface>
18   </Sheet >
19   <Sheet ColorFlag="true">
20    <Surface Side="Front" ColorFlag="true">
21     <Content Page="4" Position="0 0" Scale="0.7" ColorFlag="false"/>
22     <Content Page="5" Position="400 0" Scale="0.7" ColorFlag="false">
23      <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
24     </Content>
25    </Surface>
26   </Sheet >
27   <Sheet ColorFlag="false">
28    <Surface Side="Front" ColorFlag="false">
29     <Content Page="6" Position="0 0" Scale="0.7" ColorFlag="false"/>
30     <Content Page="7" Position="400 0" Scale="0.7" ColorFlag="false"/>
31    </Surface>
32   </Sheet >
33   <Sheet ColorFlag="true">
34    <Surface Side="Front" ColorFlag="true">
35     <Content Page="8" Position="0 0" Scale="0.7" ColorFlag="false">
36      <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
37     </Content>
38     <Content Page="9" Position="400 0" Scale="0.7" ColorFlag="false"/>
39    </Surface>
40   </Sheet >
41  </Layout>
42 </JobTicket>
```

FIG. 6

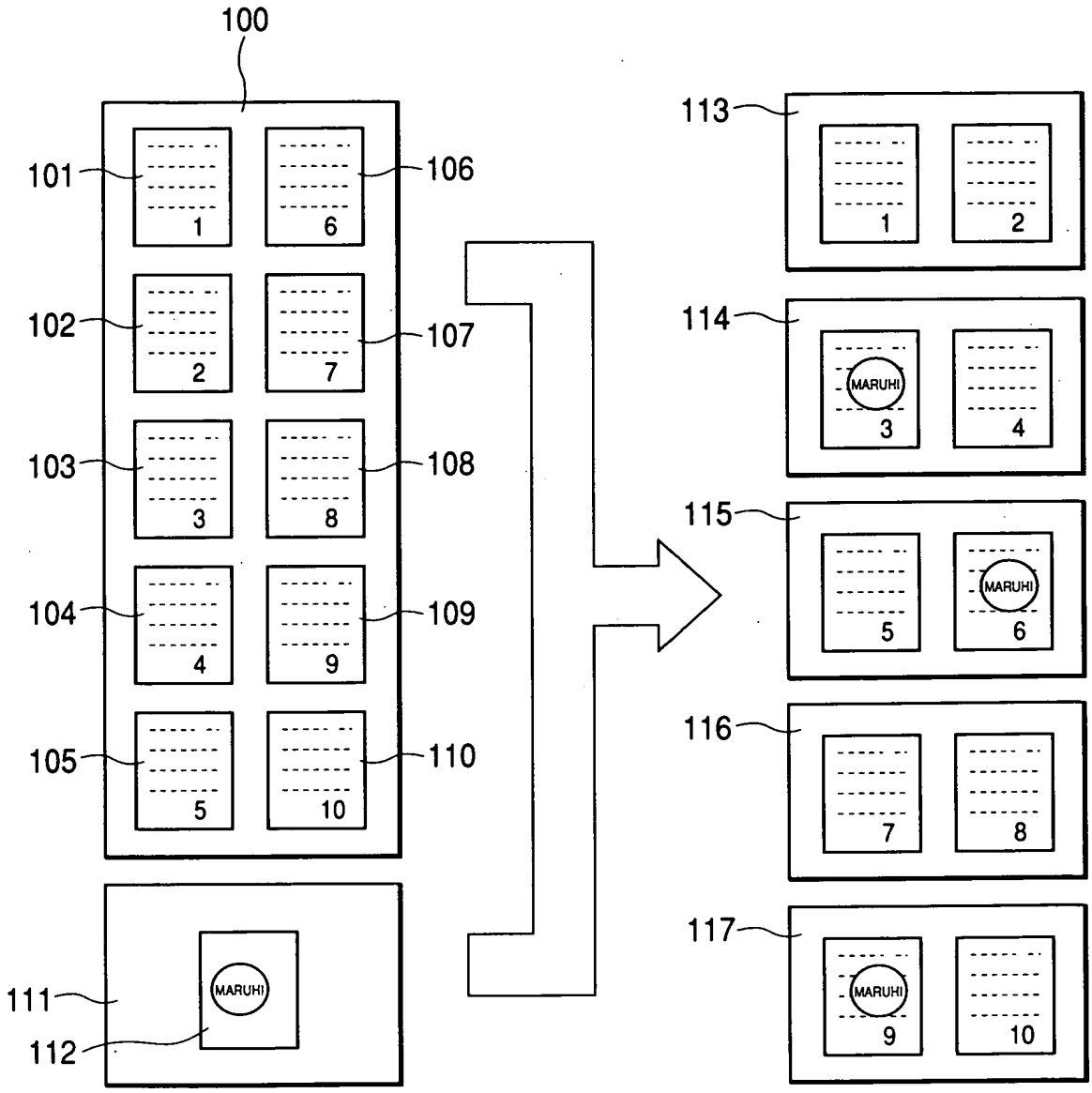

100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
MARUHI
1
2
3
4
5
6
7
8
9
10

FIG. 7

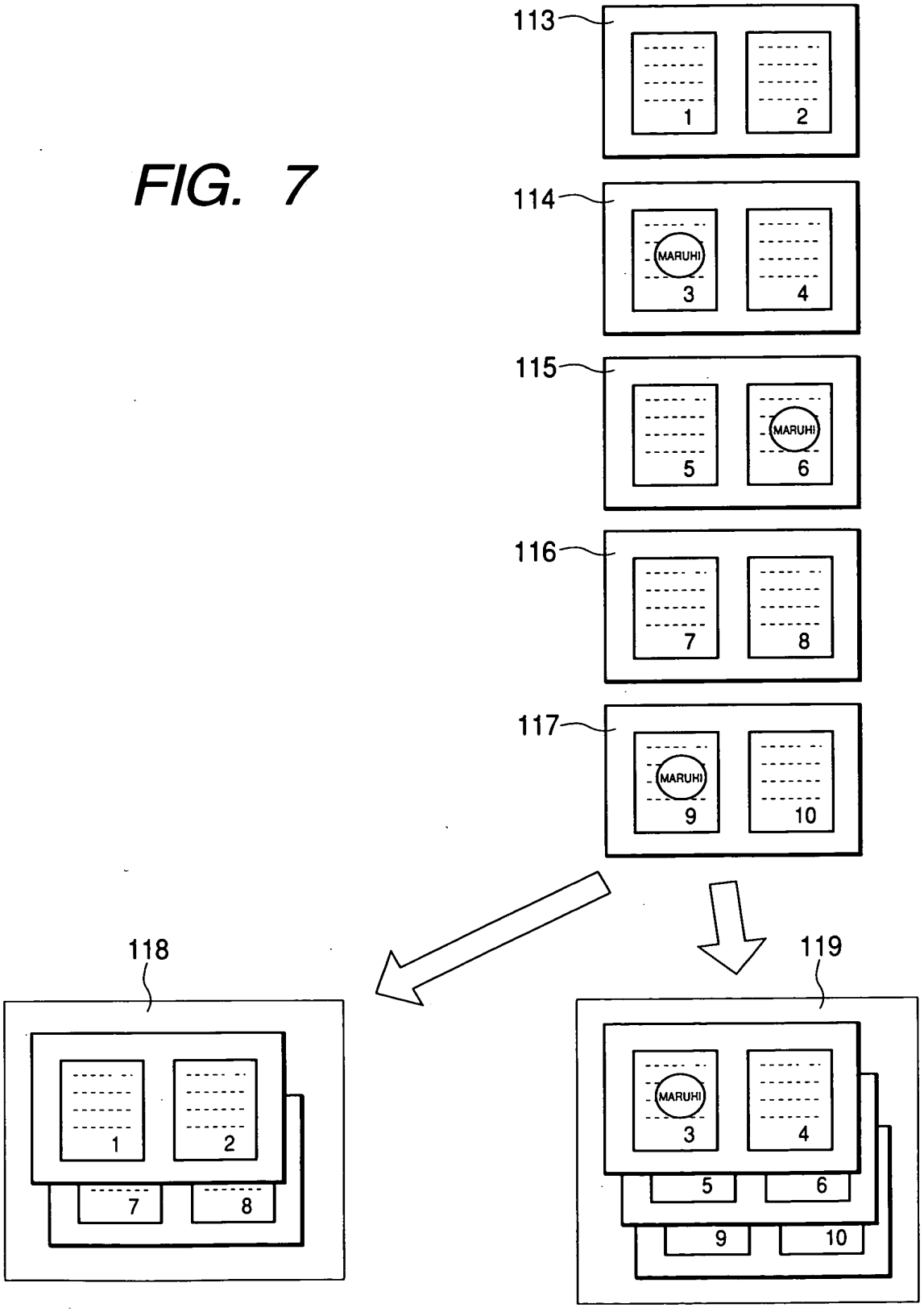

113
1
2
114
MARUHI
3
4
115
5
MARUHI
6
116
7
8
117
MARUHI
9
10
118
1
2
7
8
119
MARUHI
3
4
5
6
9
10

FIG. 8

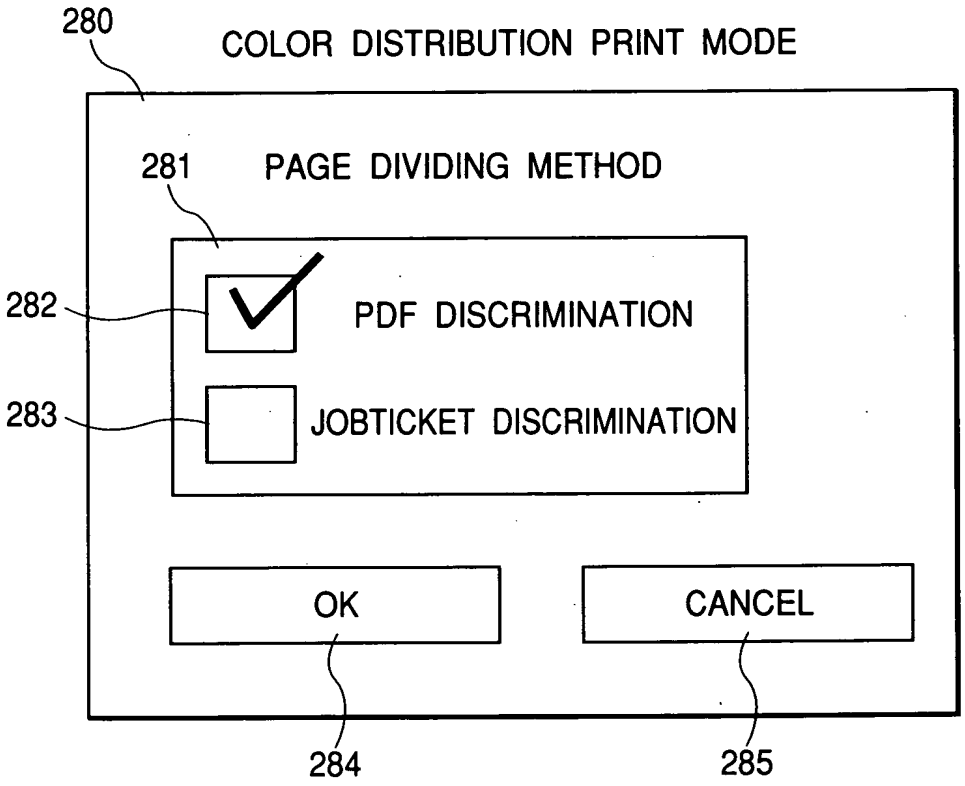

280
COLOR DISTRIBUTION PRINT MODE
281
PAGE DIVIDING METHOD
282
PDF DISCRIMINATION
283
JOBTICKET DISCRIMINATION
OK
CANCEL
284
285

FIG. 9

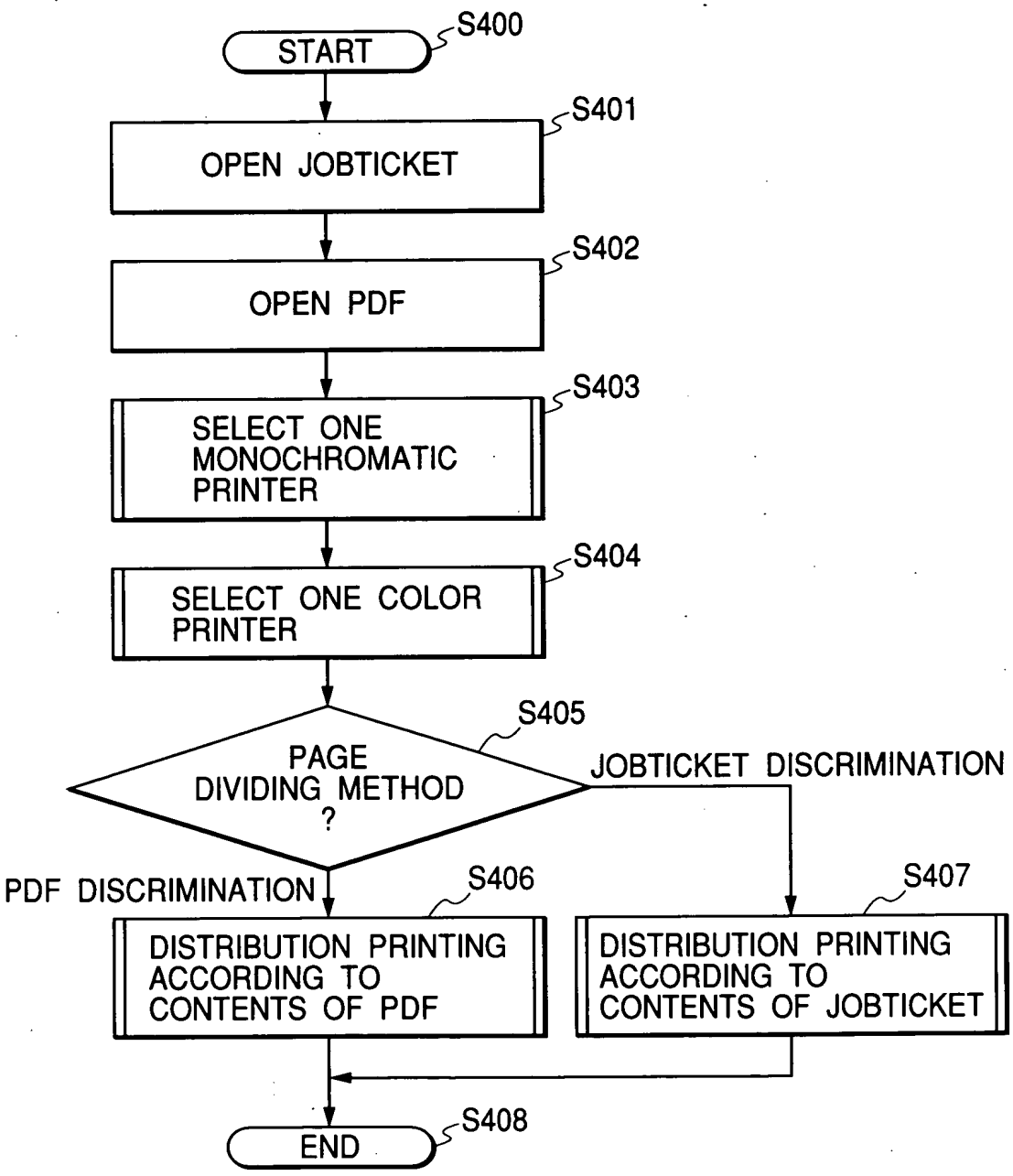

START
S400
OPEN JOBTICKET
S401
OPEN PDF
S402
SELECT ONE MONOCHROMATIC PRINTER
S403
SELECT ONE COLOR PRINTER
S404
PAGE DIVIDING METHOD ?
S405
JOBTICKET DISCRIMINATION
PDF DISCRIMINATION
DISTRIBUTION PRINTING ACCORDING TO CONTENTS OF PDF
S406
DISTRIBUTION PRINTING ACCORDING TO CONTENTS OF JOBTICKET
S407
END
S408

FIG. 10

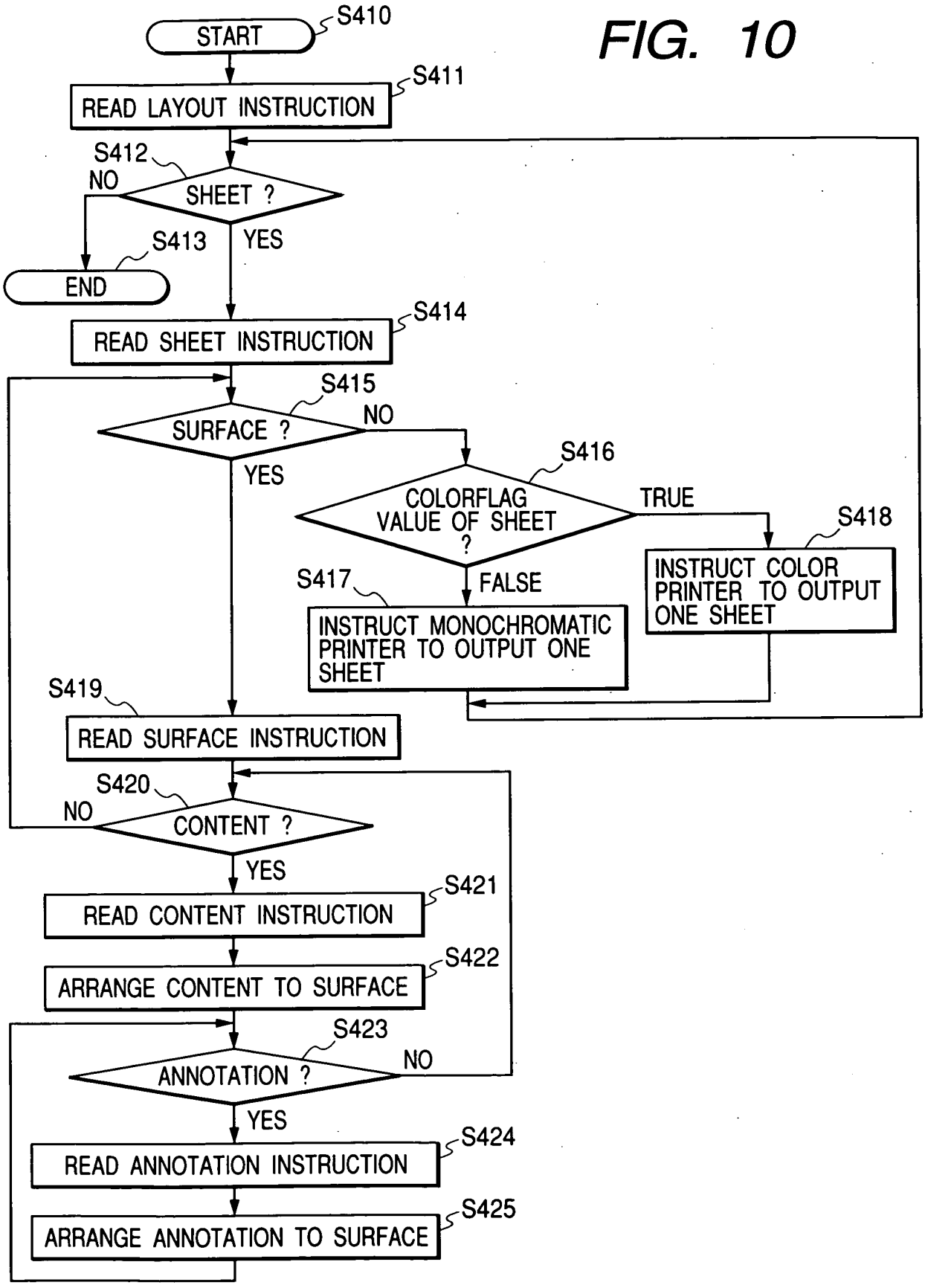

START
S410
READ LAYOUT INSTRUCTION
S411
S412
SHEET ?
NO
YES
S413
END
READ SHEET INSTRUCTION
S414
S415
SURFACE ?
NO
YES
S416
COLORFLAG VALUE OF SHEET ?
TRUE
FALSE
S417
INSTRUCT MONOCHROMATIC PRINTER TO OUTPUT ONE SHEET
S418
INSTRUCT COLOR PRINTER TO OUTPUT ONE SHEET
S419
READ SURFACE INSTRUCTION
S420
CONTENT ?
NO
YES
READ CONTENT INSTRUCTION
S421
ARRANGE CONTENT TO SURFACE
S422
S423
ANNOTATION ?
NO
YES
READ ANNOTATION INSTRUCTION
S424
ARRANGE ANNOTATION TO SURFACE
S425

FIG. 11

FIG. 11A

FIG. 11B

FIG. 11A

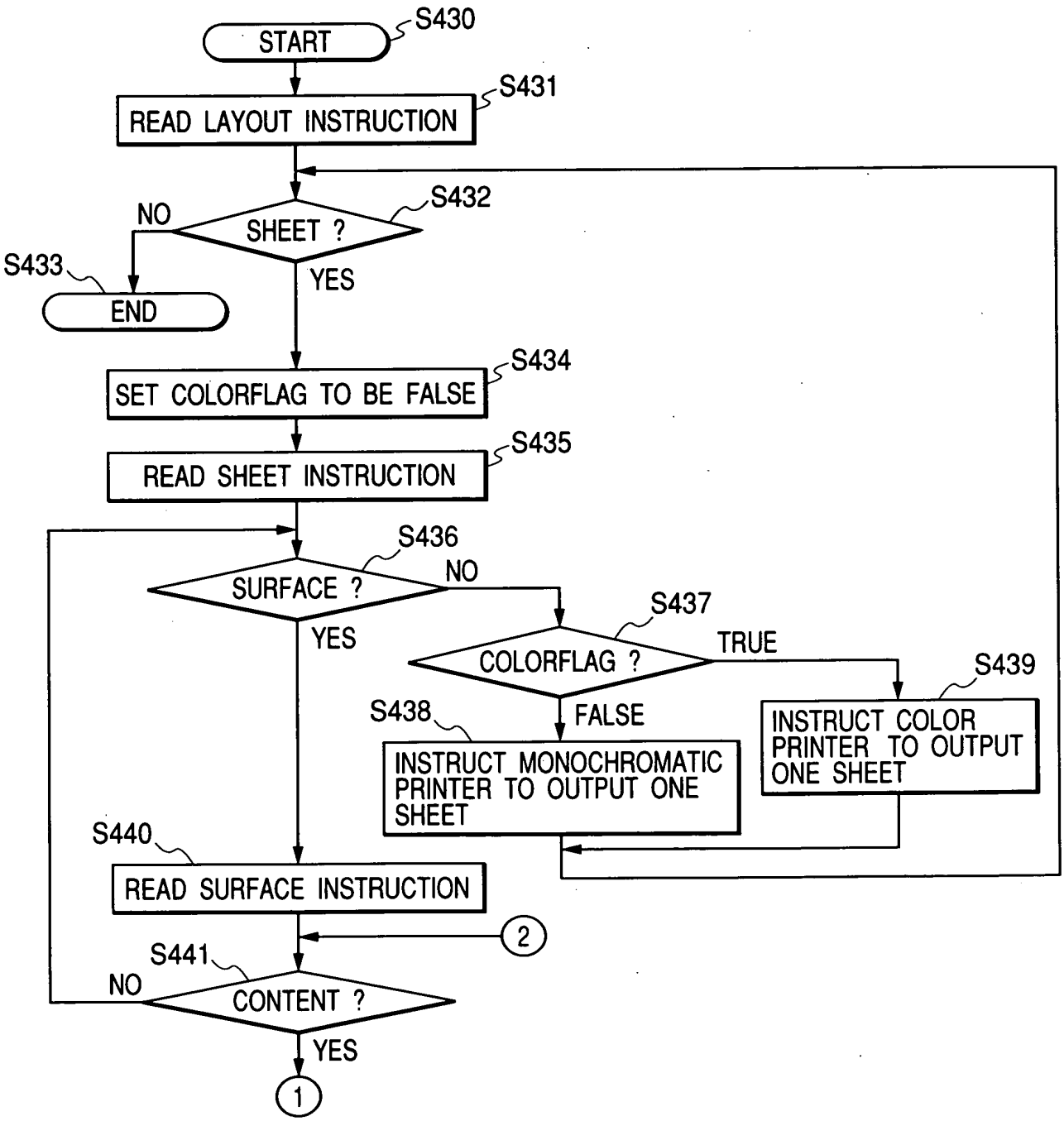


FIG. 11B

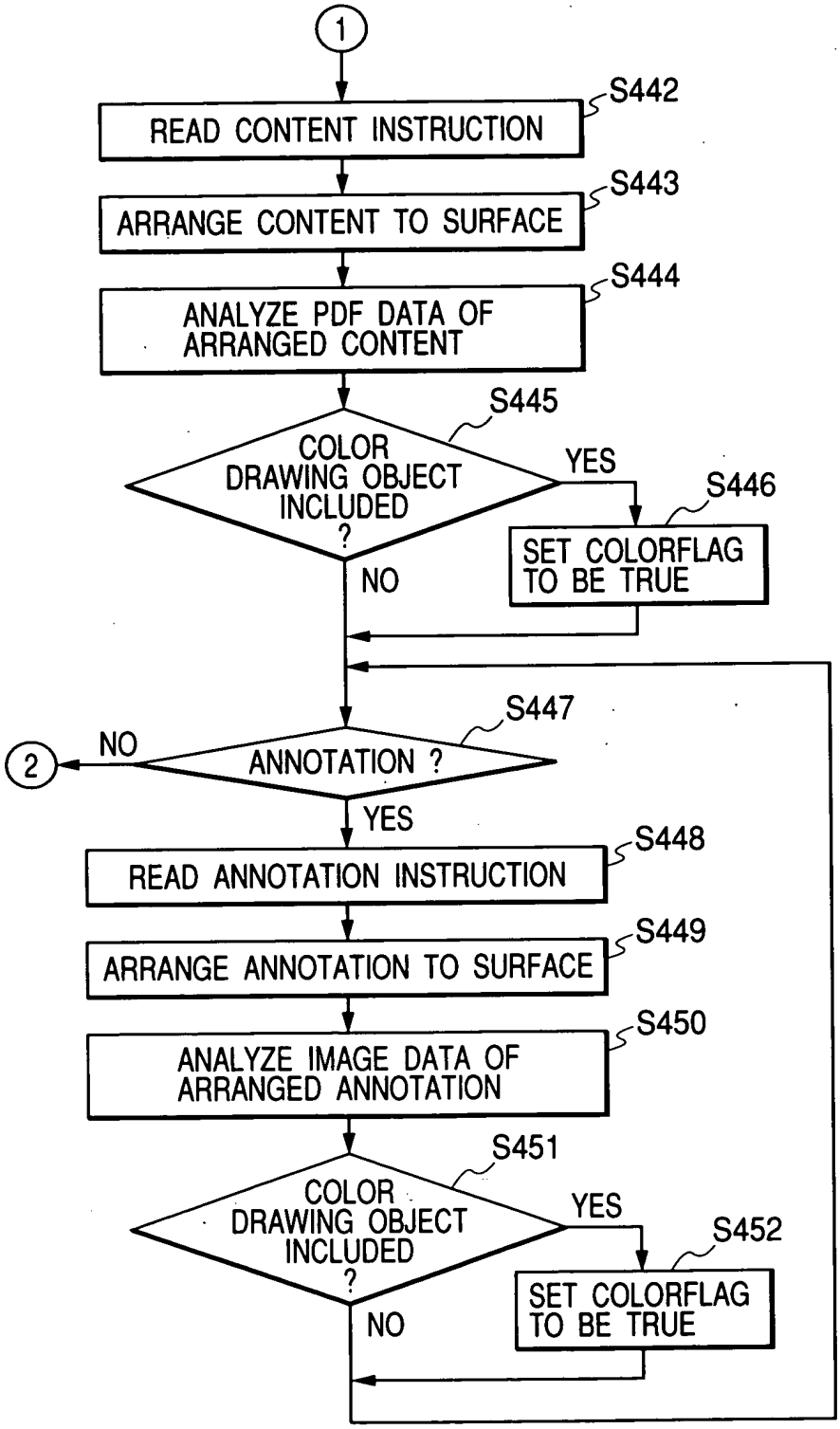

1
READ CONTENT INSTRUCTION
S442
ARRANGE CONTENT TO SURFACE
S443
ANALYZE PDF DATA OF ARRANGED CONTENT
S444
COLOR DRAWING OBJECT INCLUDED ?
S445
YES
SET COLORFLAG TO BE TRUE
S446
NO
ANNOTATION ?
S447
NO
2
YES
READ ANNOTATION INSTRUCTION
S448
ARRANGE ANNOTATION TO SURFACE
S449
ANALYZE IMAGE DATA OF ARRANGED ANNOTATION
S450
COLOR DRAWING OBJECT INCLUDED ?
S451
YES
SET COLORFLAG TO BE TRUE
S452
NO

FIG. 12

```
<JobTicket>
 <Document FileName="sample.pdf" Amount="10"/>
 <Media PaperSize="A4"/>
 <Layout ColorFlag="true">
  <Sheet ColorFlag="true">
   <Surface Side="Front" ColorFlag="false">
    <Content Page="0" Position="0 0" Scale="0.7" ColorFlag="false"/>
    <Content Page="1" Position="400 0" Scale="0.7" ColorFlag="false"/>
   </Surface>
   <Surface Side="Back" ColorFlag="true">
    <Content Page="2" Position="0 0" Scale="0.7" ColorFlag="false">
     <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
    </Content>
    <Content Page="3" Position="400 0" Scale="0.7" ColorFlag="false"/>
   </Surface>
  </Sheet >
  <Sheet ColorFlag="true">
   <Surface Side="Front" ColorFlag="true">
    <Content Page="4" Position="0 0" Scale="0.7" ColorFlag="false"/>
    <Content Page="5" Position="400 0" Scale="0.7" ColorFlag="false">
     <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
    </Content>
   </Surface>
   <Surface Side="Back" ColorFlag="false">
    <Content Page="6" Position="0 0" Scale="0.7" ColorFlag="false"/>
    <Content Page="7" Position="400 0" Scale="0.7" ColorFlag="false"/>
   </Surface>
  </Sheet >
  <Sheet ColorFlag="true">
   <Surface Side="Front" ColorFlag="true">
    <Content Page="8" Position="0 0" Scale="0.7" ColorFlag="false">
     <Annotation ImageFile="maruhi.img" Position="0 0" ColorFlag="true"/>
    </Content>
    <Content Page="9" Position="400 0" Scale="0.7" ColorFlag="false"/>
   </Surface>
  </Sheet >
 </Layout>
</JobTicket>
```

FIG. 13

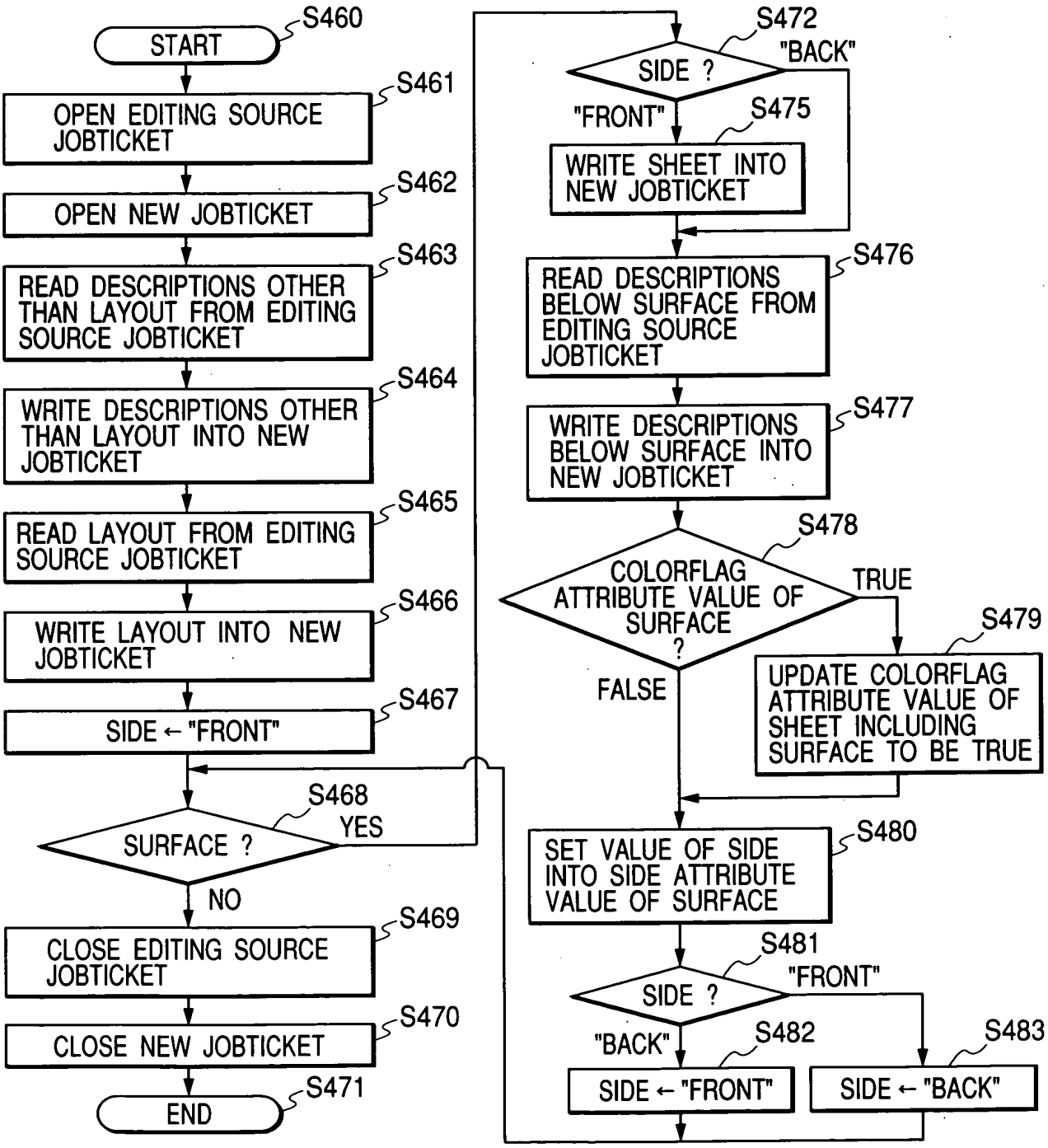

START
S460
OPEN EDITING SOURCE JOBTICKET
S461
OPEN NEW JOBTICKET
S462
READ DESCRIPTIONS OTHER THAN LAYOUT FROM EDITING SOURCE JOBTICKET
S463
WRITE DESCRIPTIONS OTHER THAN LAYOUT INTO NEW JOBTICKET
S464
READ LAYOUT FROM EDITING SOURCE JOBTICKET
S465
WRITE LAYOUT INTO NEW JOBTICKET
S466
SIDE ← "FRONT"
S467
SURFACE ?
S468
YES
NO
CLOSE EDITING SOURCE JOBTICKET
S469
CLOSE NEW JOBTICKET
S470
END
S471
SIDE ?
S472
"BACK"
"FRONT"
WRITE SHEET INTO NEW JOBTICKET
S475
READ DESCRIPTIONS BELOW SURFACE FROM EDITING SOURCE JOBTICKET
S476
WRITE DESCRIPTIONS BELOW SURFACE INTO NEW JOBTICKET
S477
COLORFLAG ATTRIBUTE VALUE OF SURFACE ?
S478
TRUE
FALSE
UPDATE COLORFLAG ATTRIBUTE VALUE OF SHEET INCLUDING SURFACE TO BE TRUE
S479
SET VALUE OF SIDE INTO SIDE ATTRIBUTE VALUE OF SURFACE
S480
SIDE ?
S481
"FRONT"
"BACK"
SIDE ← "FRONT"
S482
SIDE ← "BACK"
S483

FIG. 14

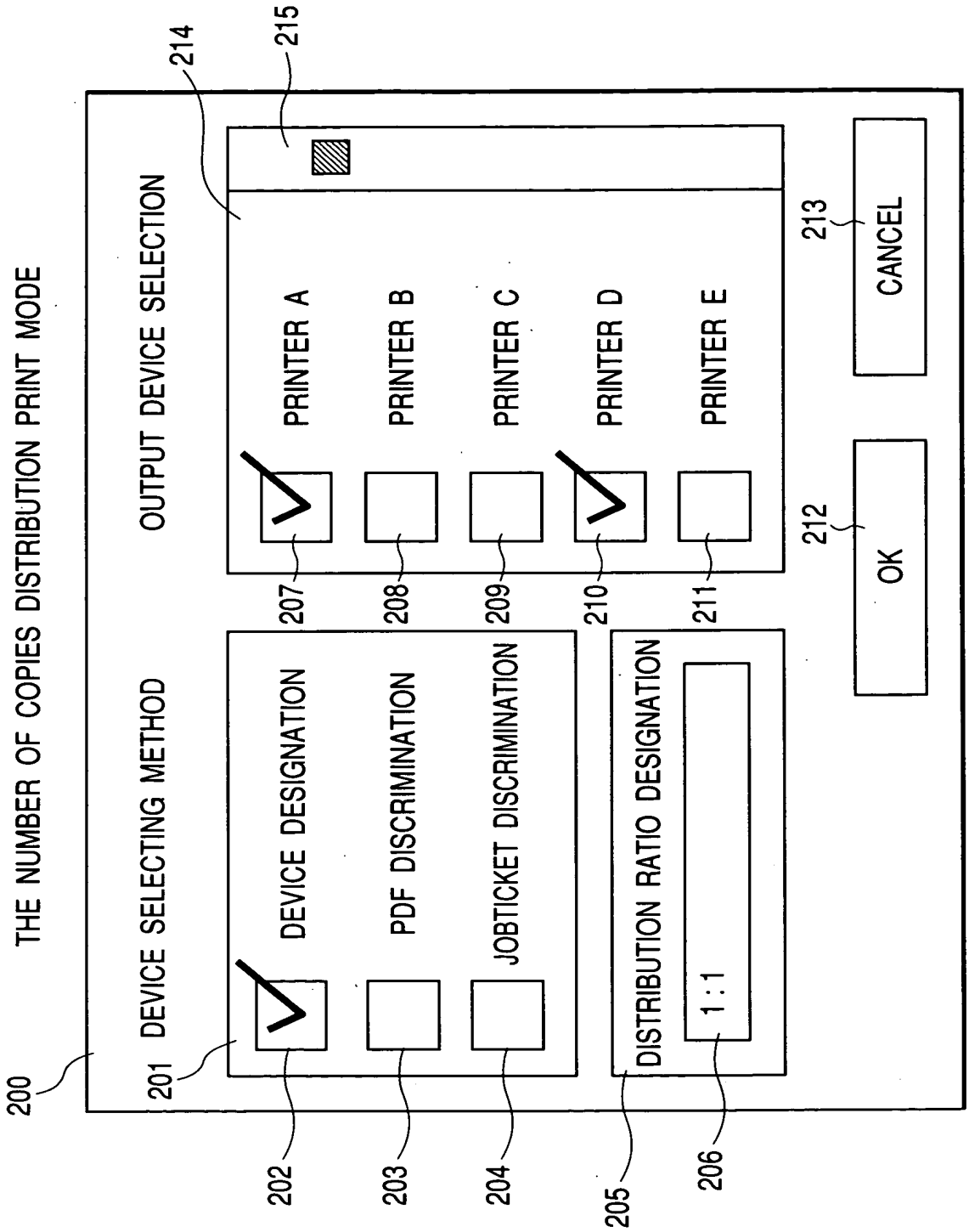

THE NUMBER OF COPIES DISTRIBUTION PRINT MODE
200
DEVICE SELECTING METHOD
201
DEVICE DESIGNATION
202
PDF DISCRIMINATION
203
JOBTICKET DISCRIMINATION
204
DISTRIBUTION RATIO DESIGNATION
205
1:1
206
OUTPUT DEVICE SELECTION
214
215
PRINTER A
207
PRINTER B
208
PRINTER C
209
PRINTER D
210
PRINTER E
211
212
OK
213
CANCEL

FIG. 15

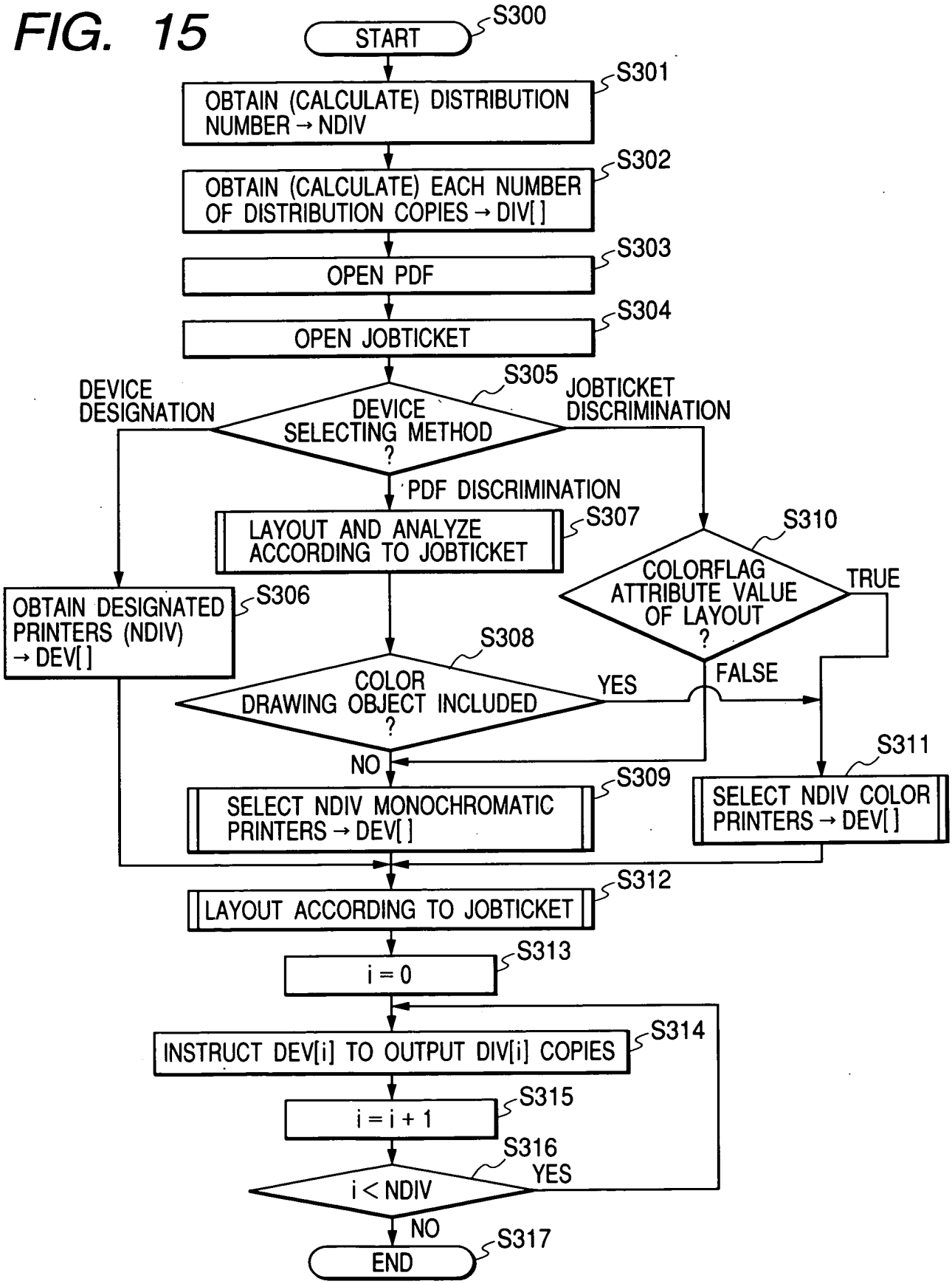

START
S300
OBTAIN (CALCULATE) DISTRIBUTION NUMBER → NDIV
S301
OBTAIN (CALCULATE) EACH NUMBER OF DISTRIBUTION COPIES → DIV[ ]
S302
OPEN PDF
S303
OPEN JOBTICKET
S304
DEVICE SELECTING METHOD ?
S305
DEVICE DESIGNATION
JOBTICKET DISCRIMINATION
PDF DISCRIMINATION
LAYOUT AND ANALYZE ACCORDING TO JOBTICKET
S307
OBTAIN DESIGNATED PRINTERS (NDIV) → DEV[ ]
S306
COLORFLAG ATTRIBUTE VALUE OF LAYOUT ?
S310
TRUE
FALSE
COLOR DRAWING OBJECT INCLUDED ?
S308
YES
NO
SELECT NDIV MONOCHROMATIC PRINTERS → DEV[ ]
S309
SELECT NDIV COLOR PRINTERS → DEV[ ]
S311
LAYOUT ACCORDING TO JOBTICKET
S312
i = 0
S313
INSTRUCT DEV[i] TO OUTPUT DIV[i] COPIES
S314
i = i + 1
S315
i < NDIV
S316
YES
NO
END
S317

FIG. 16

```
 1 <JobTicket>
 2  <Document FileName="sample.pdf" Amount="10"/>
 3  <Media PaperSize="A4"/>
 4  <Layout ColorFlag="false">
 5   <Sheet ColorFlag="false">
 6    <Surface Side="Front" ColorFlag="false">
 7     <Content Page="0" Position="0 0" Scale="0.7" ColorFlag="false"/>
 8     <Content Page="1" Position="400 0" Scale="0.7" ColorFlag="false"/>
 9    </Surface>
10   </Sheet >
11   <Sheet ColorFlag="false">
12    <Surface Side="Front" ColorFlag="false">
13     <Content Page="2" Position="0 0" Scale="0.7" ColorFlag="false"/>
14     <Content Page="3" Position="400 0" Scale="0.7" ColorFlag="false"/>
15    </Surface>
16   </Sheet >
17   <Sheet ColorFlag="false">
18    <Surface Side="Front" ColorFlag="false">
19     <Content Page="4" Position="0 0" Scale="0.7" ColorFlag="false"/>
20     <Content Page="5" Position="400 0" Scale="0.7" ColorFlag="false"/>
21    </Surface>
22   </Sheet >
23   <Sheet ColorFlag="false">
24    <Surface Side="Front" ColorFlag="false">
25     <Content Page="6" Position="0 0" Scale="0.7" ColorFlag="false"/>
26     <Content Page="7" Position="400 0" Scale="0.7" ColorFlag="false"/>
27    </Surface>
28   </Sheet >
29   <Sheet ColorFlag="false">
30    <Surface Side="Front" ColorFlag="false">
31     <Content Page="8" Position="0 0" Scale="0.7" ColorFlag="false"/>
32     <Content Page="9" Position="400 0" Scale="0.7" ColorFlag="false"/>
33    </Surface>
34   </Sheet >
35  </Layout>
36 </JobTicket>
```

FIG. 17

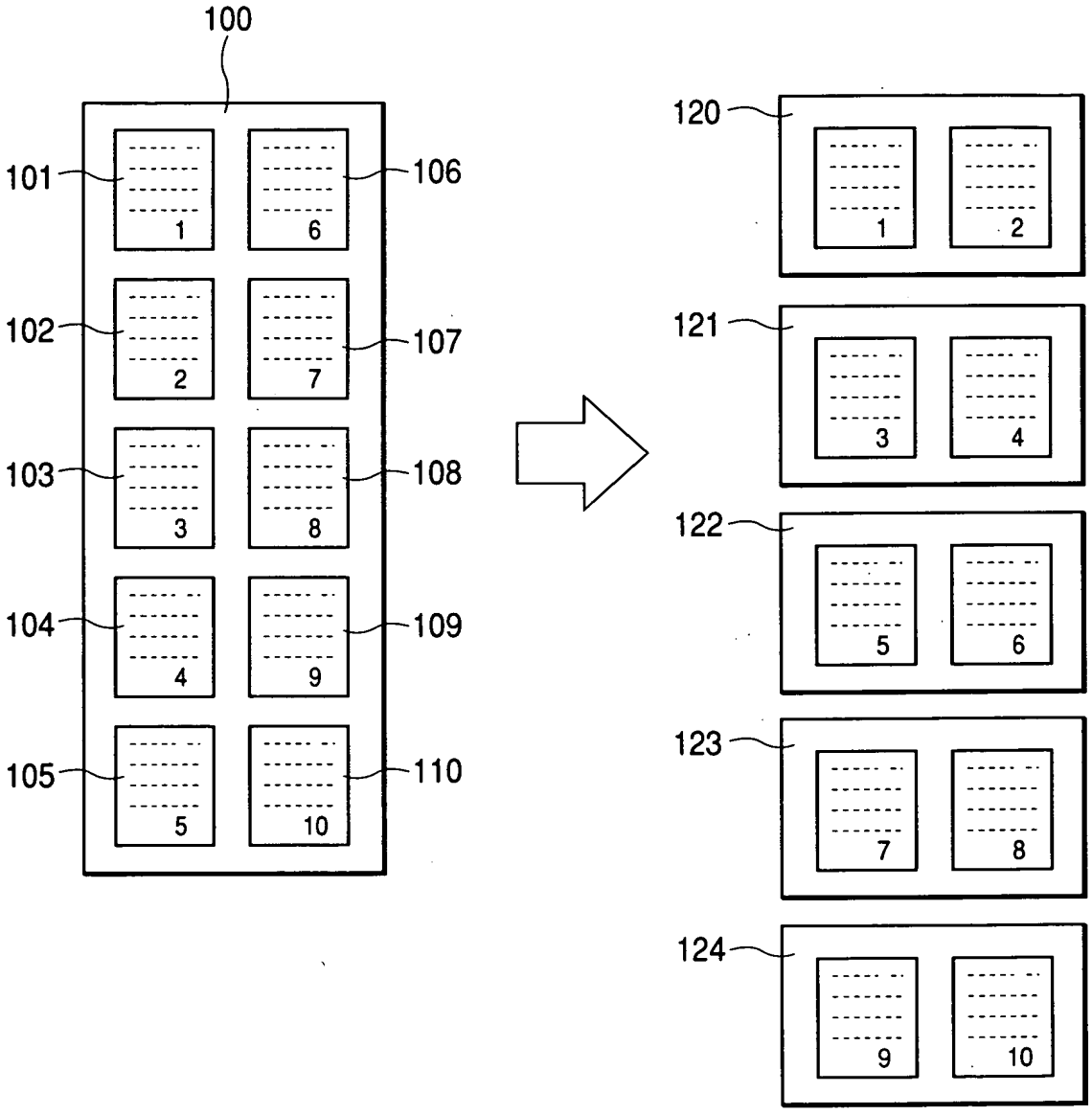

100
101
102
103
104
105
106
107
108
109
110
1
2
3
4
5
6
7
8
9
10
120
121
122
123
124

FIG. 18

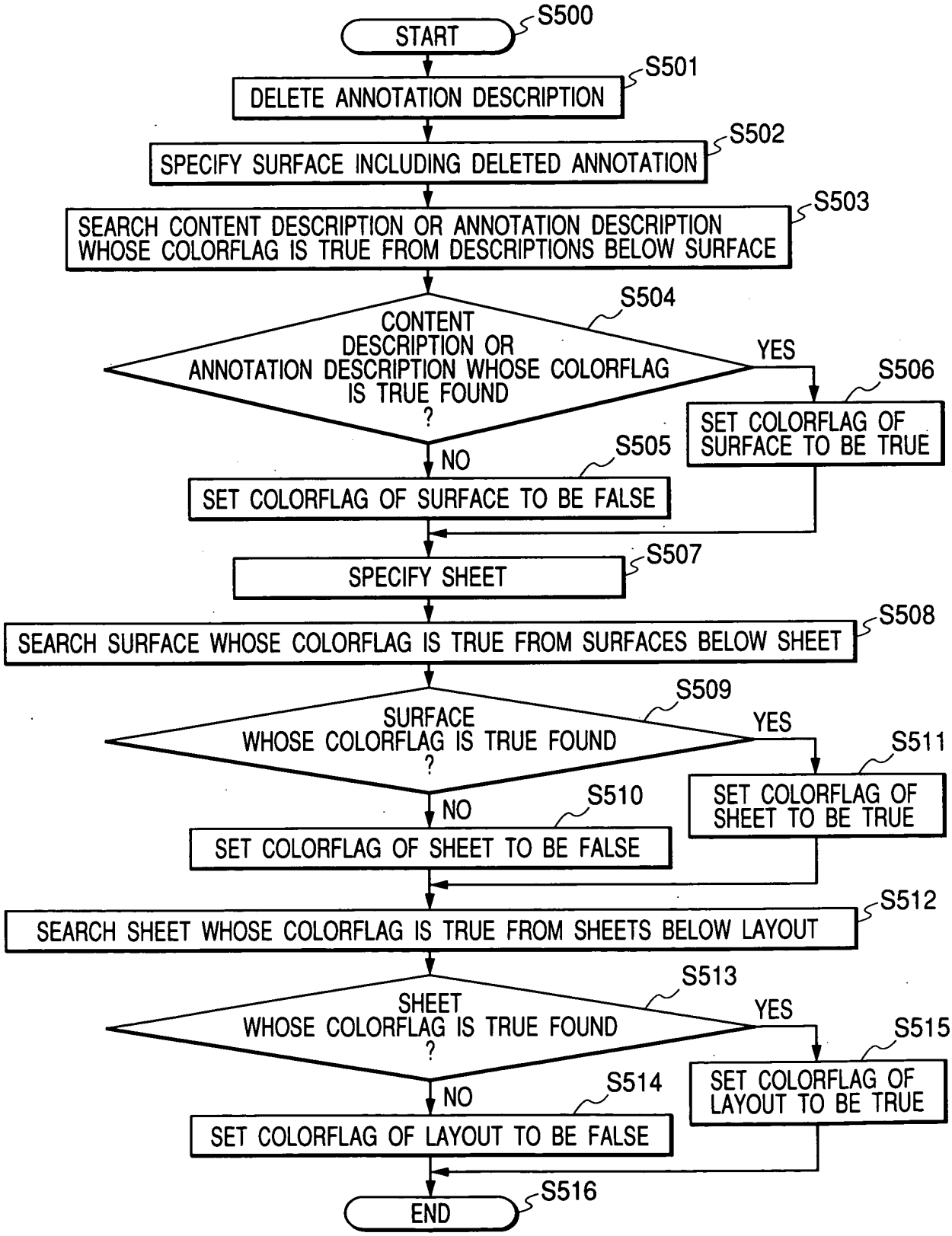
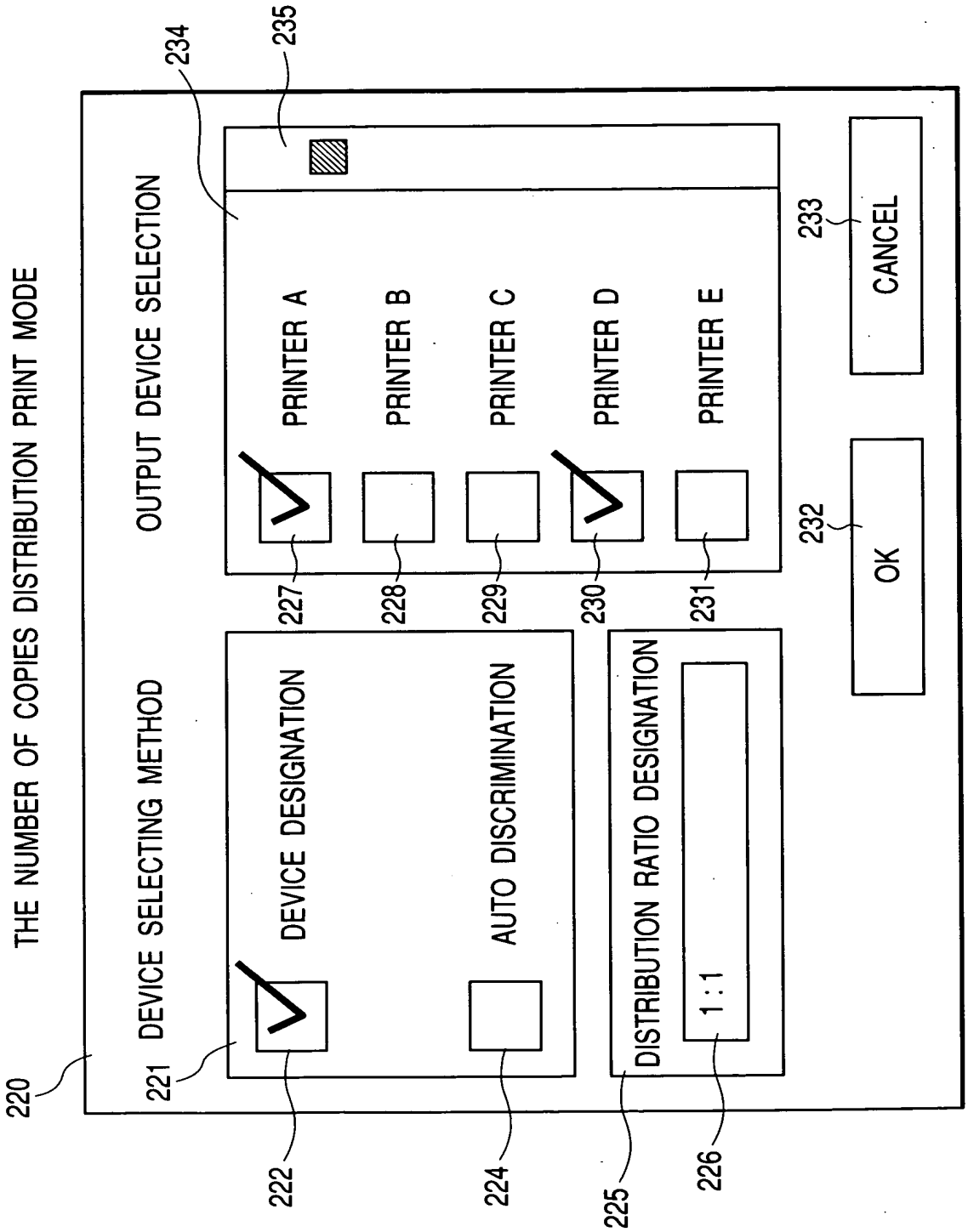

START
S500
DELETE ANNOTATION DESCRIPTION
S501
SPECIFY SURFACE INCLUDING DELETED ANNOTATION
S502
SEARCH CONTENT DESCRIPTION OR ANNOTATION DESCRIPTION WHOSE COLORFLAG IS TRUE FROM DESCRIPTIONS BELOW SURFACE
S503
CONTENT DESCRIPTION OR ANNOTATION DESCRIPTION WHOSE COLORFLAG IS TRUE FOUND ?
S504
YES
NO
SET COLORFLAG OF SURFACE TO BE TRUE
S506
SET COLORFLAG OF SURFACE TO BE FALSE
S505
SPECIFY SHEET
S507
SEARCH SURFACE WHOSE COLORFLAG IS TRUE FROM SURFACES BELOW SHEET
S508
SURFACE WHOSE COLORFLAG IS TRUE FOUND ?
S509
YES
NO
SET COLORFLAG OF SHEET TO BE TRUE
S511
SET COLORFLAG OF SHEET TO BE FALSE
S510
SEARCH SHEET WHOSE COLORFLAG IS TRUE FROM SHEETS BELOW LAYOUT
S512
SHEET WHOSE COLORFLAG IS TRUE FOUND ?
S513
YES
NO
SET COLORFLAG OF LAYOUT TO BE TRUE
S515
SET COLORFLAG OF LAYOUT TO BE FALSE
S514
END
S516

FIG. 19


THE NUMBER OF COPIES DISTRIBUTION PRINT MODE
220
DEVICE SELECTING METHOD
221
DEVICE DESIGNATION
222
AUTO DISCRIMINATION
224
DISTRIBUTION RATIO DESIGNATION
225
1 : 1
226
OUTPUT DEVICE SELECTION
234
235
PRINTER A
227
PRINTER B
228
PRINTER C
229
PRINTER D
230
PRINTER E
231
CANCEL
233
OK
232